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10.0 SITE 10 – LOWER SUBASE - FUEL STORAGE TANKS AND TANK 54-H (OU 4)

This five-year review is being conducted for Site 10 at the request of the USEPA. The site is currently being investigated under CERCLA. No decision documents have been prepared for this site.

10.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 10 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Five USTs put into service southwest of Building 107.	WW II
Tanks E, F, and G used to store diesel.	1942 – 1987
Tank K and L used to store lubrication and hydraulic oil.	1954-1989
Tank 54-H used as a reclamation tank for other five tanks.	NA
New steel tanks installed in locations of K and L.	After 1989
Phase I RI report completed.	1992
Phase II RI report completed.	1997
Final Lower Subase RI Report completed.	1999
Final FS for Soil and Groundwater for the Lower Subase being prepared.	TBD

10.2 BACKGROUND

Six former underground storage tanks, including Tank 54-H, were located at the Lower Subase at the corner of Corvina Road and Amber Jack Road. The site map is included as Figure 10-1. The location of Site 10 in relation to the other IR sites is shown on Figure 1-2.

Concrete USTs E, F, and G each had 125,000-gallon capacities and were used to store diesel fuel from 1942 to 1987. Concrete USTs K and L each had 25,000-gallon capacities and were used to store lubrication and hydraulic oil from 1954 to 1989. Tank 54-H had a 30,000-gallon capacity and was used as a reclamation tank for the other five tanks. Tanks E, F, and G have been decommissioned, and new steel tanks have been installed within the concrete shells of Tanks K and L (USEPA, 1995). Tank 54-H has also been decommissioned.

The IAS concluded that there was some measurable leakage from the tanks at Site 10 and recommended monitoring of the tank levels to see if the tanks were leaking (Envirodyne, 1982).

In 1989, Fuss & O'Neill conducted a hydrogeologic investigation of two UST areas at NSB-NLON: one at the Tank Farm located southeast of the Lower Subase and the other in the Lower Subase (i.e., Site 10). The study was initiated as a result of subsurface soil contamination encountered during construction activities in the two areas. At Site 10, four monitoring wells (FOMW-13 through 16) were installed around Tank 54-H. Soil samples were collected from each well and field screened with an organic vapor analyzer (OVA). Groundwater samples from each of the monitoring wells were analyzed by a laboratory for volatile aromatic hydrocarbons and scanned for petroleum products.

No. 2 fuel oil was detected in monitoring wells at Tank 54-H at concentrations ranging from 21 mg/L to 1100 mg/L. In addition, low concentrations (less than 15 µg/L) of benzene and xylene were detected in FOMW13. Fuss & O'Neill concluded that petroleum contamination had impacted groundwater in the area.

This site was included in the Phase II RI (B&RE, 1997a) and Lower Subase RI (TtNUS, 1999b). Sites 10 and 11 were evaluated collectively as Zone 1 in the Phase II RI and Lower Subase RI. Because of this approach, the remainder of this section only discusses information in terms of Zone 1.

The Lower Subase RI Report (TtNUS, 1999b) recommended that Zone 1 proceed to an FS for evaluation of appropriate remedial alternatives for soil and limited actions for groundwater. Because of the extensive amount of underground utilities in Zone 1 and the nature of the activities conducted at this location (i.e., national security), the FS for this zone should evaluate, to the extent possible, passive and/or in-situ remedial alternatives and the use of institutional controls. In addition, “hot spot” removal actions, in lieu of full-scale excavation, should also be considered in the Zone 1 FS. It is also recommended that the FS evaluate limited action scenarios for the groundwater and storm sewer system of Zone 1, in conjunction with the soil remedial alternatives. The scenarios evaluated for the groundwater should include free-phase product removal from monitoring well 13MW18 and a monitored natural attenuation/tiered groundwater monitoring program. The scenario for the storm sewer system should include cleaning and repair of the system. These recommendations are based on the following information:

- The nature and extent of organic and inorganic contamination in the soil are well defined to the extent practical considering infrastructure limitations.

- The baseline HHRA indicates that noncarcinogenic risks for the construction worker under the RME scenario slightly exceed 1.0. The assessment also shows that the carcinogenic risks for the construction worker, full-time employee, and the hypothetical future resident under the RME scenario and for the hypothetical future resident under the CTE scenario are in excess of the CTDEP

cumulative target risk level. In addition, the carcinogenic risk for the full-time employee and hypothetical future resident under the RME scenario exceed the USEPA target risk range.

- Based on a comparison of analytical results with conservative, generic mobility criteria, organic and inorganic contamination in the soil has the potential to migrate and impact the groundwater at this site. Groundwater analytical data confirm these screening results and indicate that limited migration is currently occurring.

- Monitored natural attenuation or bioremediation could be feasible alternatives for the petroleum contamination in the soil.

- Significant amounts of petroleum contamination remain in the soils of Zone 1; however, the historical source(s) of petroleum contamination have been eliminated (i.e., the leaking Site 10 and 11 USTs, the Building 89 UST, and the fuel distribution line have been removed and/or repaired). The Navy has implemented leak detection systems for all USTs and conducts regular pressure testing and repairs on the fuel distribution lines.

- The zone is generally covered with pavement or buildings, which minimizes direct exposure to the contaminated soil by human receptors.

- The groundwater at Zone 1 is not currently or anticipated to be used in the future as a potable water source because it is brackish; therefore, there is no imminent threat to human health.

- The ERA for the Thames River adjacent to Zone 1 and the baseline HHRA for Zone 2 (both downgradient receptors of Zone 1) show that the risks to ecological and human receptors in these adjacent areas are currently minor. In addition, the Thames River provides significant dilution and mixing, which minimizes the impact of any contaminant migration from Zone 1.

- Free-phase petroleum product was only detected in well 13MW18 during the latest round of sampling.

- Key parameters indicate that natural attenuation processes are at work in the groundwater of Zone 1 and these processes can reduce concentrations of petroleum contamination that reach the aquifer and convert the petroleum contamination to a less toxic form. Monitored natural attenuation should be further evaluated as part of the remedial strategy for the Zone 1 to confirm the effectiveness of these processes. The monitored natural attenuation program should include or be part of a tiered groundwater monitoring program, similar to those currently being implemented at other NSB-NLON IRP sites. These programs confirm or disprove that contamination present in the soil is mobile and

impacting other media and allow for further actions to be completed if the results show significant impacts.

- The storm sewer system in Zone 1 is a potential migration pathway for contaminants present in the groundwater.

The Navy subsequently cleaned the Lower Subase storm sewer catch basins in August 2000. Two Zone 1 catch basins were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed off-site. The storm sewer lines were not surveyed or repaired during the effort. An FS is currently being prepared for Zone 1 by EA Engineering for the Navy.

10.3 REMEDIAL ACTIONS

10.3.1 Remedy Selection

A final remedy has not been selected or implemented for Zone 1. An FS is currently being prepared to evaluate remedial alternatives for the zone. The Lower Subase RI recommended that the FS for Zone 1, evaluate, to the extent possible, passive and/or in-situ remedial alternatives and the use of institutional controls. In addition, “hot spot” removal actions should also be considered in the FS for Zone 1. The RI also recommended that the FS evaluate limited action scenarios for the groundwater and storm sewer system of Zone 1 in conjunction with the soil remedial alternatives.

10.3.2 Remedy Implementation

A final remedy has not yet been chosen for Zone 1. The date for finalization of the FS for the Lower Subase zones is to be determined at this time. After the FS is finalized, a remedy will be selected by the Navy, USEPA, and CTDEP.

10.4 FIVE-YEAR REVIEW FINDINGS

10.4.1 Site Inspection

A site inspection conducted at Site 10 on April 10, 2001 included visual observations of the surrounding area. Conditions during the inspection were favorable, with mild temperatures and no precipitation. Representatives from the Navy, USEPA, CTDEP, and TtNUS participated in the inspection. No signs of visual contamination or notable signs of impacts from the site were observed. It was noted that leak detection systems are in place for the tanks. Appendix A contains photographs taken of the site during the inspection.

The area is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subase is a high-security area at NSB-NLON. The Navy has no plans to change the current use of the site.

10.4.2 Document and Analytical Data Review

The final Lower Subase RI Report (TtNUS, 1999b) was reviewed for this five-year review. The RI recommended that the soil and groundwater OUs proceed to an FS to evaluate appropriate remedial alternatives. An FS is currently being prepared to evaluate alternatives for remedial action at the zone. It is expected that a decision document will be signed for the zone prior to the Second Five-Year Review and additional information regarding the document will be provided at that time.

10.4.3 ARAR and Site-Specific Action Level Changes

A ROD has not been signed for Zone 1, and therefore it cannot be determined at this time if the remedial actions are protective of human health and the environment.

Also, since a ROD has not been signed for Zone 1, ARARs and site-specific action levels were not reviewed to determine if there is a question on the protectiveness of the remedy.

10.5 ASSESSMENT

A final remedy has not been selected for Zone 1. Conclusions cannot be made to support the determination that the remedy for Zone 1 is protective of human health and the environment. The results of the Lower Subase RI do not indicate any imminent threats to human health or the environment.

The Navy has an IR Site Use Restriction instruction in place as of October 2000 at NSB-NLON [SOPA (ADMIN) NLONINST 5090.18]. The policy restricts ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater at IR sites.

10.6 DEFICIENCIES

A final remedy has not been selected for Zone 1, therefore deficiencies cannot be determined at this time.

10.7 RECOMMENDATIONS AND REQUIRED ACTIONS

It is recommended that the FS be completed to determine the appropriate remedial action for Zone 1 that is protective of human health and the environment. An appropriate decision document should be

prepared after the FS is completed to document the selected remedial alternative. It is also recommended that there be enforcement of the IR Site Use Restriction instruction (Navy, 2000b).

10.8 PROTECTIVENESS STATEMENT

A remedy for Zone 1 has not yet been selected by the Navy, USEPA, and CTDEP. The results of the Lower Subase RI do not indicate any imminent threats to human health or the environment under current land use scenarios. The Navy has instituted instructions that restrict excavation activities. The instructions should minimize unauthorized and unplanned exposure to contaminated media at the zone.

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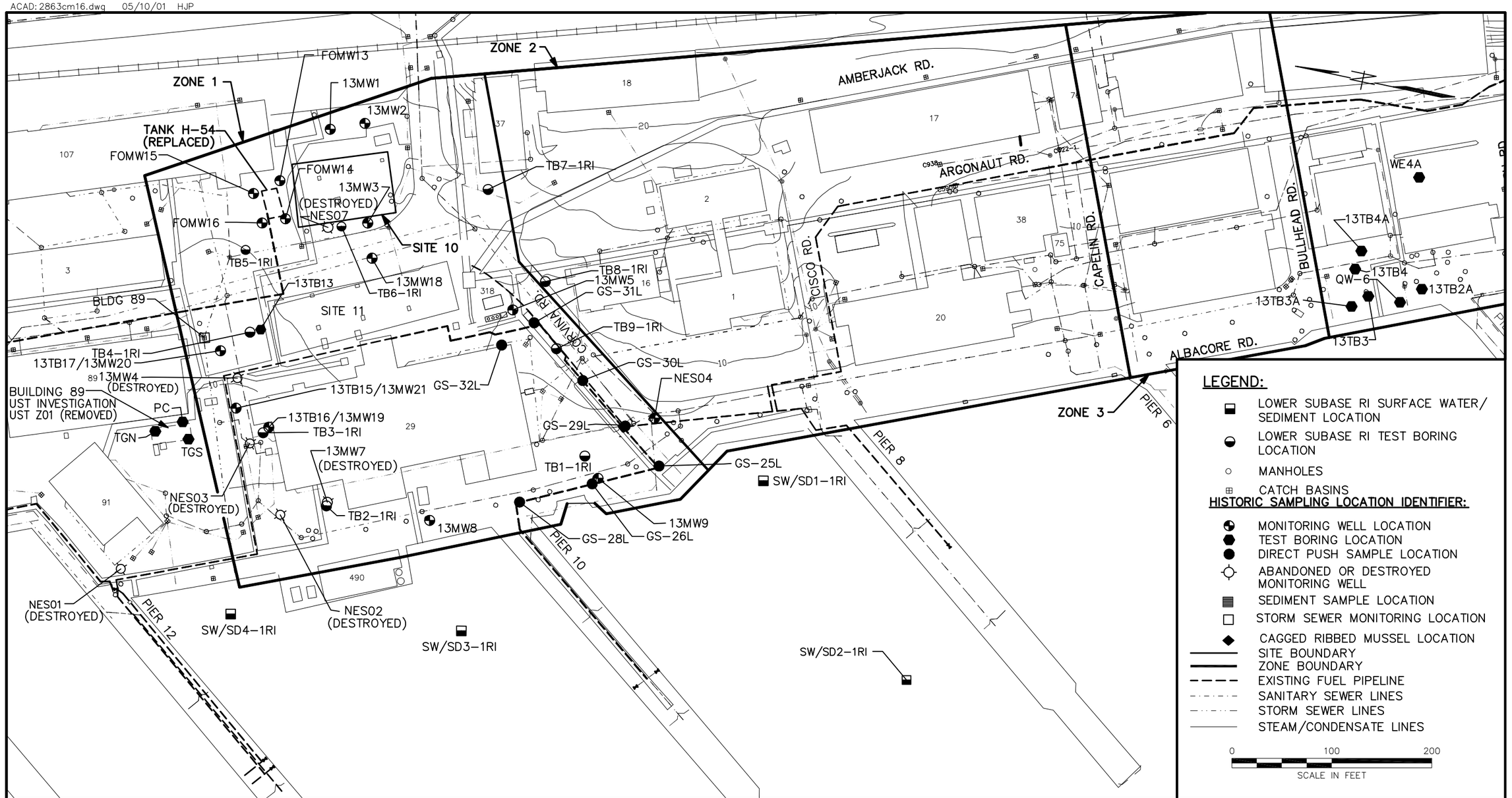

LEGEND:

- LOWER SUBASE RI SURFACE WATER/ SEDIMENT LOCATION
- LOWER SUBASE RI TEST BORING LOCATION
- MANHOLES
- CATCH BASINS

HISTORIC SAMPLING LOCATION IDENTIFIER:

- MONITORING WELL LOCATION
- TEST BORING LOCATION
- DIRECT PUSH SAMPLE LOCATION
- ABANDONED OR DESTROYED MONITORING WELL
- SEDIMENT SAMPLE LOCATION
- STORM SEWER MONITORING LOCATION
- CAGGED RIBBED MUSSEL LOCATION
- SITE BOUNDARY
- ZONE BOUNDARY
- EXISTING FUEL PIPELINE
- SANITARY SEWER LINES
- STORM SEWER LINES
- STEAM/CONDENSATE LINES

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NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY HJP DATE 5/10/01
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

SITE MAP
SITE 10 - FUEL STORAGE TANKS AND TANK 54-H
NSB-NLON
GROTON, CONNECTICUT

CONTRACT NO. 2863 | OWNER NO. 0816
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 10-1 | REV. 0

FORM CADD NO. TtNUS_BH.DGN - REV 0 - 1/20/98

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11.0 SITE 11 – LOWER SUBASE – POWER PLANT OIL TANKS (OU 4)

This five-year review is being conducted for Site 11 at the request of the USEPA. The site is currently being investigation under CERCLA. No decision documents have been prepared for this site.

11.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 11 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Four USTs in place.	WW II
IAS detected leakage from tanks and recommended replacement of the tanks.	1982
Tanks A and B used to store No. 6 fuel oil.	WW II – 1980s
Tank C used to store diesel oil.	WW II – mid-1980s
Tank D used to store waste oil.	WW II – mid-1980s
Three new USTs installed.	mid-1980s
Final Site Investigation recommended further review of the operation and distribution of oil in Building 29.	1987
Phase I RI Report completed.	1992
Phase II RI Report completed.	1997
Final Lower Subase RI Report completed.	1999
Final FS for Soil and Groundwater for the Lower Subase.	TBD

11.2 BACKGROUND

Site 11 consists of four former underground tanks (A, B, C, and D) located immediately east of Building 29. The site map is included as Figure 11-1. The location of Site 11 in relation to the other IR sites is shown on Figure 1-2. Concrete tanks A and B each had a capacity of 170,000 gallons and were used to store No. 6 grade fuel oil that was pumped from the Tank Farm located at the south end of NSB-NLON. Concrete tanks C and D each had a capacity of 170,000 gallons. Tank C was used to store diesel oil and Tank D was used to store waste oil generated by the bilge water oil recovery system at the power plant. The tanks were installed during World War II and were decommissioned in the mid-1980s. The old concrete tanks were repaired and are now used as containment structures for three new, 150,000-gallon steel tanks.

According to the IAS, there was leakage from the tanks and petroleum had migrated to the groundwater, the steam and fuel pipeline tunnels, and the underground vaults. The IAS recommended replacing the tanks at Site 11 and implementing oil recovery (Envirodyne, 1982).

In 1987, Wehran Engineering Corporation completed a Final Site Investigation for subsurface oil contamination and identified an area within Site 11 that was contaminated with heavy oil. This area, comprising of electrical conduits and manholes along Corvina Road, contained a mixture of No. 5 and No. 6 fuel oils. Wehran recommended that further review of the operation and distribution of oil in Building 29 be conducted (Wehran, 1987).

This site was included in the Phase II RI (B&RE, 1997a) and Lower Subase RI (TtNUS, 1999b). Sites 10 and 11 were evaluated collectively as Zone 1 in the Phase II RI and Lower Subase RI. Because of this approach, the remainder of this section only discusses information in terms of Zone 1.

The Lower Subase RI recommended that Zone 1 proceed to an FS for evaluation of appropriate remedial alternatives for soil and limited actions for groundwater. Because of the extensive amount of underground utilities in Zone 1 and the nature of the activities conducted at this location (i.e., national security), the FS for this zone should evaluate, to the extent possible, passive and/or in-situ remedial alternatives and the use of institutional controls. In addition, “hot spot” removal actions, in lieu of full-scale excavation, should also be considered in the Zone 1 FS. It is also recommended that the FS evaluate limited action scenarios for the groundwater and storm sewer system of Zone 1, in conjunction with the soil remedial alternatives. The scenarios evaluated for the groundwater should include free-phase product removal from monitoring well 13MW18 and a monitored natural attenuation/tiered groundwater monitoring program. These recommendations are based on the following information:

- The nature and extent of organic and inorganic contamination in the soil are well defined to the extent practical considering infrastructure limitations.

- The baseline HHRA indicates that noncarcinogenic risks for the construction worker under the RME scenario slightly exceed 1.0. The assessment also shows that the carcinogenic risks for the construction worker, full-time employee, and the hypothetical future resident under the RME scenario and for the hypothetical future resident under the central tendency exposure (CTE) scenario are in excess of the CTDEP cumulative target risk level. In addition, the carcinogenic risk for the full-time employee and hypothetical future resident under the RME scenario exceeds the USEPA target risk range.

- Based on a comparison of analytical results with conservative, generic mobility criteria, organic and inorganic contamination in the soil has the potential to migrate and impact the groundwater at this site. Groundwater analytical data confirm these screening results and indicate that limited migration is currently occurring.

- Monitored natural attenuation or bioremediation could be feasible alternatives for the petroleum contamination in the soil.

- Significant amounts of petroleum contamination remain in the soils of Zone 1; however, the historical source(s) of petroleum contamination have been eliminated (i.e., the leaking Site 10 and 11 USTs, the Building 89 UST, and the fuel distribution line have been removed and/or repaired). The Navy has implemented leak detection systems for all USTs and conducts regular pressure testing and repairs on the fuel distribution lines.

- The zone is generally covered with pavement or buildings, which minimizes direct exposure to the contaminated soil by human receptors.

- The groundwater at Zone 1 is not currently or anticipated to be used in the future as a potable water source because it is brackish; therefore, there is no imminent threat to human health.

- The ERA for the Thames River adjacent to Zone 1 and the baseline HHRA for Zone 2 (both downgradient receptors of Zone 1) show that the risks to ecological and human receptors in these adjacent areas are currently minor. In addition, the Thames River provides significant dilution and mixing, which minimizes the impact of any contaminant migration from Zone 1.

- Free-phase petroleum product was only detected in well 13MW18 during the latest round of sampling.

- Key parameters indicate that natural attenuation processes are at work in the groundwater of Zone 1 and these processes can reduce concentrations of petroleum contamination that reach the aquifer and convert the petroleum contamination to a less toxic form. Monitored natural attenuation should be further evaluated as part of the remedial strategy for Zone 1 to confirm the effectiveness of these processes. The monitored natural attenuation program should include or be part of a tiered groundwater monitoring program, similar to those currently being implemented at other NSB-NLON IRP sites. These programs confirm or disprove that contamination present in the soil is mobile and impacting other media and allow for further actions to be completed if the results show significant impacts.

- The storm sewer system in Zone 1 is a potential migration pathway for contaminants present in the groundwater.

The Navy subsequently cleaned the Lower Subase storm sewer catch basins in August 2000. Two Zone 1 catch basins were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed offsite. The storm sewer lines were not surveyed or repaired during the effort. An FS is currently being prepared for Zone 1 by EA Engineering for the Navy.

11.3 REMEDIAL ACTIONS

11.3.1 Remedy Selection

A final remedy has not been selected or implemented for Zone 1. An FS is currently being prepared to further evaluate remedial alternatives for the zone. The Lower Subase RI recommended that the FS for Zone 1 evaluate, to the extent possible, passive and/or in-situ remedial alternatives and the use of institutional controls. In addition, "hot spot" removal actions should also be considered in the FS for Zone 1. The RI also recommended that the FS evaluate limited action scenarios for the groundwater and storm sewer system of Zone 1, in conjunction with the soil remedial alternatives.

11.3.2 Remedy Implementation

A final remedy has not yet been chosen for Zone 1. The date for finalization of the FS for the Lower Subase zones is to be determined at this time. After the FS is finalized, a remedy will be selected by the Navy, USEPA, and CTDEP.

11.4 FIVE-YEAR REVIEW FINDINGS

11.4.1 Site Inspection

A site inspection conducted at Site 11 on April 10, 2001 included visual observations of the surrounding area. Conditions during the inspection were favorable, with mild temperatures and no precipitation. Representatives from the Navy, USEPA, CTDEP, and TtNUS participated in the inspection. No signs of visual contamination or notable signs of impacts from the site were observed. It was noted that leak detection systems are in place for the tanks. Appendix A contains photographs taken of the site during the inspection.

The area is covered with pavement or buildings and is located near the Thames River and a set of railroad tracks. The Lower Subase is a high-security area at NSB-NLON. The Navy has no plans to change the current use of the site.

11.4.2 Document and Analytical Data Review

The final Lower Subase RI Report was reviewed for this five-year review. The RI recommended that the soil and groundwater OUs proceed to an FS to evaluate appropriate remedial alternatives. An FS is currently being prepared to evaluate alternatives for remedial action at the zone. It is expected that a decision document will be signed for the zone prior to the Second Five-Year Review and additional information regarding the document will be provided at that time.

11.4.3 ARAR and Site-Specific Action Level Changes

A ROD has not been signed for Zone 1, and therefore it cannot be determined at this time if the remedial actions are protective of human health and the environment.

Also, since a ROD has not been signed for Zone 1, ARARs and site-specific action levels were not reviewed to determine if there is a question on the protectiveness of the remedy.

11.5 ASSESSMENT

A final remedy has not been selected for Zone 1. Conclusions cannot be made to support the determination that the remedy for Zone 1 is protective of human health and the environment. The results of the Lower Subase RI do not indicate any imminent threats to human health or the environment. The Navy has an IR Site Use Restriction instruction in place as of October 2000 at NSB-NLON [SOPA (ADMIN) NLONINST 5090.18]. The policy restricts ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater at IR sites.

11.6 DEFICIENCIES

A final remedy has not been selected for Zone 1, therefore deficiencies cannot be determined at this time.

11.7 RECOMMENDATIONS AND REQUIRED ACTIONS

It is recommended that the FS be completed to determine the appropriate remedial action for Zone 1 that is protective of human health and the environment. An appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative. It is also recommended that there be enforcement of the IR Site Use Restriction instruction.

11.8 PROTECTIVENESS STATEMENT

A remedy for Zone 1 has not yet been selected by the Navy, USEPA, and CTDEP. The results of the Lower Subase RI do not indicate any imminent threats to human health or the environment under current land use scenarios. The Navy has instituted instructions that restrict excavation activities. The instructions should minimize unauthorized and unplanned exposure to contaminated media at the site.

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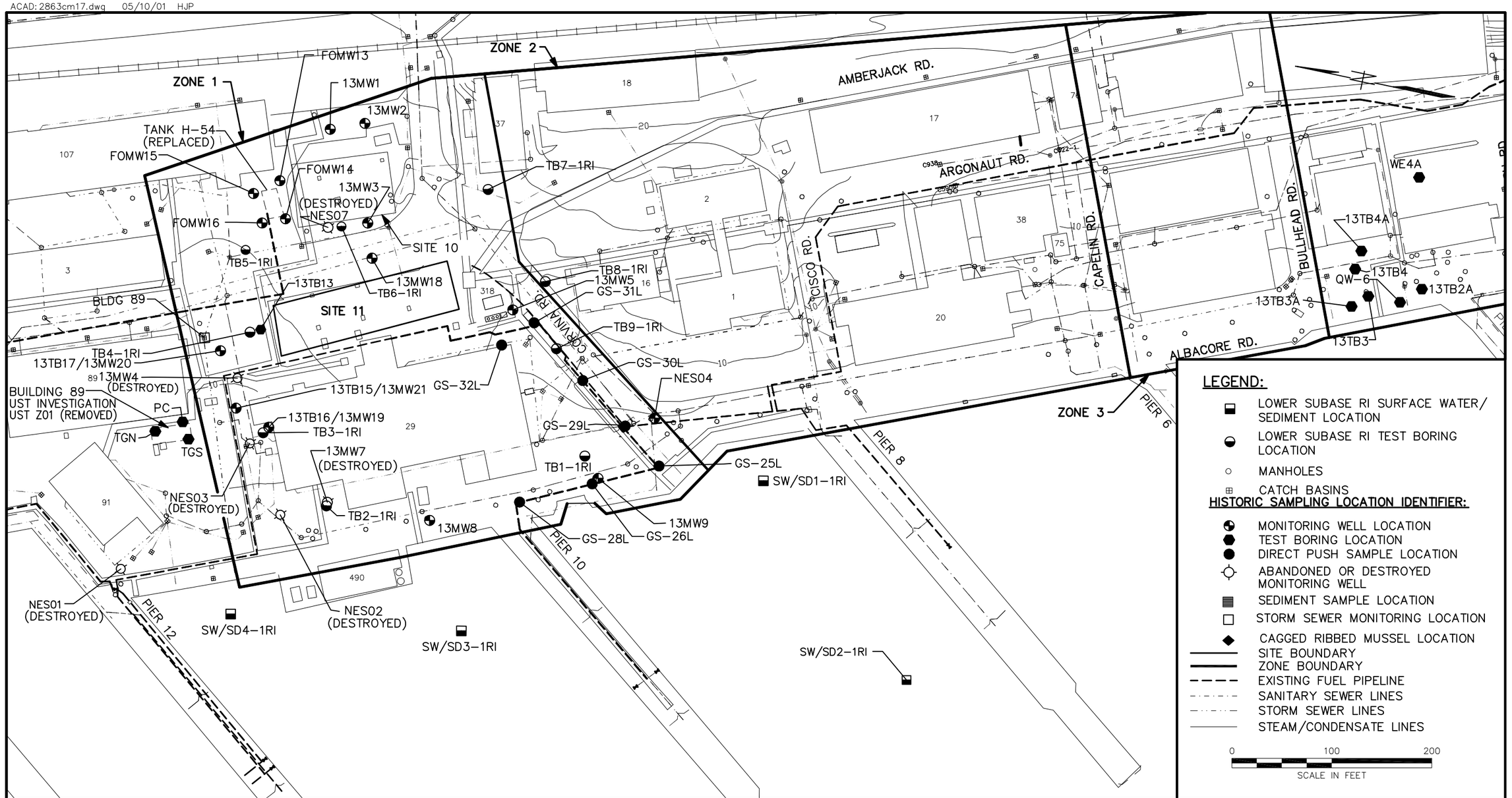

LEGEND:

- LOWER SUBASE RI SURFACE WATER/ SEDIMENT LOCATION
- LOWER SUBASE RI TEST BORING LOCATION
- MANHOLES
- CATCH BASINS

HISTORIC SAMPLING LOCATION IDENTIFIER:

- MONITORING WELL LOCATION
- TEST BORING LOCATION
- DIRECT PUSH SAMPLE LOCATION
- ABANDONED OR DESTROYED MONITORING WELL
- SEDIMENT SAMPLE LOCATION
- STORM SEWER MONITORING LOCATION
- CAGGED RIBBED MUSSEL LOCATION
- SITE BOUNDARY
- ZONE BOUNDARY
- EXISTING FUEL PIPELINE
- SANITARY SEWER LINES
- STORM SEWER LINES
- STEAM/CONDENSATE LINES

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SCALE IN FEET

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY HJP DATE 5/10/01
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

SITE MAP
SITE 11 - POWER PLANT OIL TANKS
NSB-NLON
GROTON, CONNECTICUT

CONTRACT NO. 2863 | OWNER NO. 0816
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 11-1 | REV. 0

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12.0 SITE 13 – LOWER SUBASE – BUILDING 79 WASTE OIL PIT (OU 4)

This five-year review is being conducted for Site 13 at the request of the USEPA. This site is currently being investigated under CERCLA. No decision documents have been prepared for this site.

12.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 13 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Oil detected in soil samples from waste oil pit location.	1979
Waste Oil pit filled and a recovery well system installed and operated for several months.	1985
Phase I RI completed.	1992
Quay Wall removal action completed.	1994
Phase II RI completed.	1997
Final Lower Subase RI completed.	1999
Final FS for soil and groundwater at the Lower Subase currently being generated.	TBD

12.2 BACKGROUND

Site 13 consists of the former waste oil pit located in the northwestern corner of Building 79 on the Lower Subase. The site map is included as Figure 12-1. Figure 1-2 shows the locations of the site relevant to the other IR sites at NSB-NLON. The pit was formerly used as a collection area for waste oil and solvents that were generated during the cleaning and servicing of diesel train engines. The pit has been filled with concrete (Wehran, 1987), and a recovery well system was installed sometime around 1985. The system operated for a period of several months but was determined to be ineffective and was later abandoned.

Analytical results from soil samples collected from borings in the area of the waste oil pit indicate that subsurface contamination is primarily lubricating/motor oil (NESO, 1979). The oil was detected at a sample interval of 6 to 9 feet below the ground surface. It is estimated that the saturated volume of contamination is approximately 50 feet by 50 feet by 4 feet deep.

In 1987, Wehran Engineering Corporation completed an investigation to identify and delineate the sources of heavy oils in the subsurface of the Lower Subase (Sites 10, 11, and 13). Manholes and the area underneath the supporting platform in the vicinity of Building 79 (Site 13) contained No. 6 fuel oil older than 1 year and trace levels of waste oils. Wehran recommended removal of the oil from the

manholes near Building 79 by using absorption pads and/or excavation of oil-laden soil and inspection of fuel lines within the trench and subsequent cleaning of the trench.

During the Phase I RI, a brown milky oil was identified west of Building 79. The report indicated this oil potentially originated from the former waste pit in Building 79. An old drawing shows the outlet from the waste oil pit 29 feet south of the north side of Building 79 (Atlantic, 1992).

The Quay Wall Study Area runs from approximately Pier 2 to Pier 6 (see Figure 12-1). An investigation and removal action were completed in this area to address petroleum contamination. The area was man-made and consists of a wooden platform and quay wall that were constructed in 1940. The wooden platform is 4 inches thick and is supported by 10- to 12-inch-square wooden joists and 8-inch timber pilings. A steel bulkhead along the Thames River was erected in 1952; it was constructed of steel sheet piling and supports. During construction of the bulkhead, the quay wall and wooden platform were covered with approximately 6 to 7 feet of sand and gravel fill, and the area was paved for vehicular access along Albacore Road. The quay wall is located approximately 4 feet east of the steel bulkhead, immediately beneath the paved surface. Fill soil below the wooden platform and quay wall periodically wash out. Void spaces of 3 to 8 feet exist discontinuously beneath the wooden platform. Sand and gravel fill separate the void spaces and the void spaces are replaced with sand poured into a series of manholes along the length of Albacore Road. Natural river deposits of silt and sand underlie the void spaces and sand fill.

Zones of visible petroleum contamination were present in the soil immediately above the wooden platform and in the fill below the wooden platform. Petroleum was found in the area around the storm sewer manhole northeast of Pier 4. Globules of floating product were also present in the standing water in the void spaces below the wooden platform. Releases of petroleum products and oily substances were observed in the Thames River in the vicinity of the storm sewer outfall just north of Pier 4 in November 1994. It was determined that the probable source of the releases was the storm sewer manhole near Pier 4 and Building 79. An expandable rubber plug was placed in the storm sewer outfall in November 1994, and the storm sewer pipe leading to the outfall was filled with sand in late December 1994. This measure appears to have eliminated migration of petroleum product from this outlet, because no visible release of petroleum product has been observed in the Thames River near the outlet.

Halliburton NUS prepared a Removal Site Evaluation for the quay wall to summarize the removal actions performed in November and December 1994 to remedy petroleum product releases that occurred along the quay wall of the Lower Subase. A summary of the actions completed is as follows:

- From November 4, 1994 to November 6, 1994, a spill response and cleanup contractor retained by the Navy completed cleanup activities.

- Approximately 2,300 gallons of oily waste water and thirty-nine 55-gallon drums, two 30-gallon drums, and one 18-gallon drum of absorbent pads contaminated with product were generated during cleanup activities.

- Five product recovery wells (QW-1 through QW-5) were subsequently installed. Oil/water was pumped from the recovery wells four times between December 5 and 21, 1994. A total of approximately 16,000 gallons of oil/water was pumped and containerized. A small percentage of the liquid pumped (less than 5 percent) was petroleum product.

Five subsurface soil samples were collected from five of the six borings. Four of the soil samples (QW-2, QW-3, QW-4, and QW-5) were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) and TPH. The fifth soil sample (QW-1) was analyzed for TCL organics, TAL inorganics plus boron, TPH, and toxicity characteristic leaching procedure (TCLP) metals. Lead was identified as the only chemical of concern. Based on current and anticipated land use of the area, direct exposures to lead were not considered likely to occur except during construction activities. Therefore, the Removal Site Evaluation recommended that no further removal action be performed at that time but that further site investigations should focus on lead concentrations. It was estimated that no more than 800 gallons of petroleum were pumped from the void spaces.

A majority of the site is paved or covered with buildings. This site was included in the Phase II RI and the Lower Subase RI. The site was included in Zone 4 for the Phase II RI and Lower Subase RI. Because of this approach, the remainder of this section only discusses information in terms of Zone 4.

The Lower Subase RI recommended that Zone 4, which includes Site 13 - Building 79 Waste Oil Pit, Site 19 - Solvent Storage Area (Building 316), the Quay Wall Study Area, and the fuel distribution pipeline, proceed to an FS to evaluate appropriate remedial alternatives. Because of the extensive amount of underground utilities in Zone 4 and the sensitive nature of the activities conducted at this location (i.e., national security), the FS for this zone should focus, to the extent possible, on evaluation of alternatives that rely on institutional controls to limit exposure to contaminated soil and passive and/or in-situ remedial alternatives. In addition, the Zone 4 FS should consider “hot spot” removal actions in lieu of full-scale excavation. A tiered groundwater monitoring program and cleaning and repair of the Zone 4 storm sewer system should also be evaluated during the FS. These recommendations are based on the following information:

- The nature and extent of organic and inorganic contamination in the soil and groundwater are well defined to the extent practical considering infrastructure limitations.

- The baseline HHRA indicates that there are carcinogenic risks associated with Zone 4 that exceed the USEPA acceptable risk range (i.e., the hypothetical future resident RME scenario) and CTDEP target risk level (i.e., the full-time employee and hypothetical future resident RME scenarios). In addition, modeling performed to evaluate exposures to lead showed that receptors sensitive to lead exposure (i.e., small children and fetuses of pregnant working women) are at risk in Zone 4. All the elevated risks (for lead and other chemicals) were calculated for a future exposure scenario where soils currently covered by pavement or buildings would be available for human contact. Institutional controls and/or "hot spot" removal actions could be used to eliminate this exposure route.

- Evidence suggests that limited organic and inorganic contamination is migrating from the site. Natural attenuation seems to be occurring in the groundwater of Zone 4 and is most likely reducing the concentration and magnitude of petroleum hydrocarbons migrating from the site. Groundwater monitoring will confirm natural attenuation and potential inorganic migration.

- Natural attenuation or bioremediation could be feasible alternatives to remedy the petroleum contamination in the soil.

- A tiered groundwater monitoring program would allow for further actions to be implemented if the results show significant impacts.

- The ERA for the Thames River adjacent to Zone 4 shows that the risks to ecological receptors in this area are relatively low to moderate. Maximum concentrations of several non-AVS inorganics in Zone 4 sediments near the Lower Subase exceeded conservative guidelines (e.g., ER-Ls) indicating that potential risks may be present. The AVS/SEM analysis suggests that cadmium, copper, nickel, lead, and zinc are not bioavailable. Beryllium, boron, cobalt, thallium, and vanadium were retained as COCs since conservative sediment guidelines were unavailable; no alternate guideline was available for barium, whose maximum exceeded the conservative guideline. They were concluded to not be of ecological significance in the NSB-NLON Phase II RI ERA for the Thames River. Benzo(a)pyrene was the only organic in Zone 4 sediments that had maximum concentrations in excess of guidelines. The average concentration of benzo(a)pyrene also exceeded the guideline. The maximum concentration slightly exceeded its ER-M. Despite exceedances of guideline values by several COCs, no significant toxicity was observed in Zone 4 sediment toxicity tests from the NSB-NLON Phase II RI. Low concentrations of some PAHs were detected in a native blue mussel sample collected in Zone 4 as part of the NSB-NLON Phase II RI ERA. Chromium, mercury, and

benzo(a)pyrene were not detected in that sample, indicating that they were probably not bioavailable. Boron was detected in the blue mussel sample from Zone 4 and in the blue mussel sample collected south of Zone 4 at concentrations greatly exceeding background and control concentrations. The toxicological significant is unclear due a lack to toxicity data for that metal. The NSB-NLON Phase II RI concluded that boron was not of ecological significance in the Thames River. The weight of evidence appears to indicate that potential risks to sediment-dwelling organisms from contaminants in Zone 4 sediment are present and that those potential risks are low to moderate.

- The Thames River provides significant dilution and mixing, which minimizes the impact of contaminant migration from Zone 4.

- The Navy removed the waste oil pit at Building 79 and filled the area in with concrete. A recovery well system was installed and operated for a short time in this area. In addition, approximately 800 gallons of petroleum product were removed via pumping from the quay wall area during a removal action in 1994.

- The Navy currently conducts regular pressure testing and repairs on the fuel distribution lines; therefore, the historical source of petroleum contamination has most likely been minimized.

- Zone 4 is covered with pavement or buildings, which minimizes the potential for direct exposure to the contaminated soil by human receptors.

- The groundwater at Zone 4 is not currently or anticipated to be used in the future as a potable water source because it is brackish and classified as GB; therefore, there is no imminent threat to human health.

- The storm sewer system in Zone 4 is a potential migration pathway for contaminants present in the groundwater.

The Navy subsequently cleaned the Lower Subase storm sewer catch basins in August 2000. Seven Zone 4 catch basins were cleaned by Fleet Environmental using a vacuum truck. The material removed from the catch basins was containerized, tested (TCLP/TPH), and properly disposed off-site. The storm sewer lines were not surveyed or repaired during the effort. The FS is currently being prepared for the Navy by EA Engineering.

12.3 REMEDIAL ACTIONS

12.3.1 Remedy Selection

A final remedy has not been implemented for Zone 4. An FS is currently being prepared to evaluate alternatives for the zone. The Lower Subase RI recommended that the FS for Zone 4 evaluate a range of remedial alternatives that include institutional controls to limit exposure to contaminated soil and passive and/or in-situ remedial alternatives.

12.3.2 Remedy Implementation

A final remedy has not yet been chosen for Zone 4. The date for finalization of the FS for the Lower Subase zones is to be determined at this time. After the FS is finalized, a remedy will be selected by the Navy, USEPA, and CTDEP.

12.4 FIVE-YEAR REVIEW FINDINGS

12.4.1 Site Inspection

A site inspection conducted at Site 13 on April 10, 2001 included visual observations of the building and surrounding areas. Conditions during the inspection were favorable, with mild temperatures and no precipitation. Representatives from the Navy, USEPA, CTDEP, and TtNUS participated in the inspection. No signs of visual contamination or notable signs of impacts from the site were observed. Appendix A contains photographs taken of the site during the inspection.

The Lower Subase is a high-security area at NSB-NLON. The area is covered with pavement or buildings, and there are no short-term or long-term plans to convert this area to any other use.

12.4.2 Document and Analytical Data Review

The final Lower Subase RI Report was reviewed for this five-year review. The RI recommended that the soil and groundwater OUs proceed to an FS to evaluate appropriate remedial alternatives. An FS is currently being completed to evaluate alternatives for remedial action at the zone. It is expected that a decision document will be signed for the zone prior to the Second Five-Year Review and additional information regarding the document will be provided at that time.

12.4.3 ARAR and Site-Specific Action Level Changes

A ROD has not been signed for Zone 4, and therefore it cannot be determined at this time if the remedial actions are protective of human health and the environment.

Also, since a ROD has not been signed for Zone 4, ARARs and site-specific action levels have not been reviewed to determine if there is a question on the protectiveness of the remedy.

12.5 ASSESSMENT

A final remedy has not been selected at Zone 4. Conclusions cannot be made to support the determination that the remedy for Zone 4 is protective of human health and the environment. The Navy has an IR Site Use Restriction instruction in place as of October 2000 at NSB-NLON [SOPA (ADMIN) NLONINST 5090.18]. The policy restricts ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater at IR sites.

12.6 DEFICIENCIES

A final remedy has not yet been implemented for Zone 4, therefore deficiencies cannot be determined at this time.

12.7 RECOMMENDATIONS AND REQUIRED ACTIONS

It is recommended that the FS be completed to determine the appropriate remedial action for Zone 4 that is protective of human health and the environment. An appropriate decision document should be prepared after the FS is completed to document the selected remedial alternative. In addition, it is recommended that there be enforcement of the IR Site Use Restriction instruction.

12.8 PROTECTIVENESS STATEMENT

A remedy for Zone 4 has not yet been selected by the Navy, USEPA, and CTDEP. The results of the Lower Subase RI do not indicate any imminent threats to human health or the environment under current land use scenarios. The Navy has instituted instructions that restrict excavation activities. The instructions should minimize unauthorized and unplanned exposure to contaminated media at the site.

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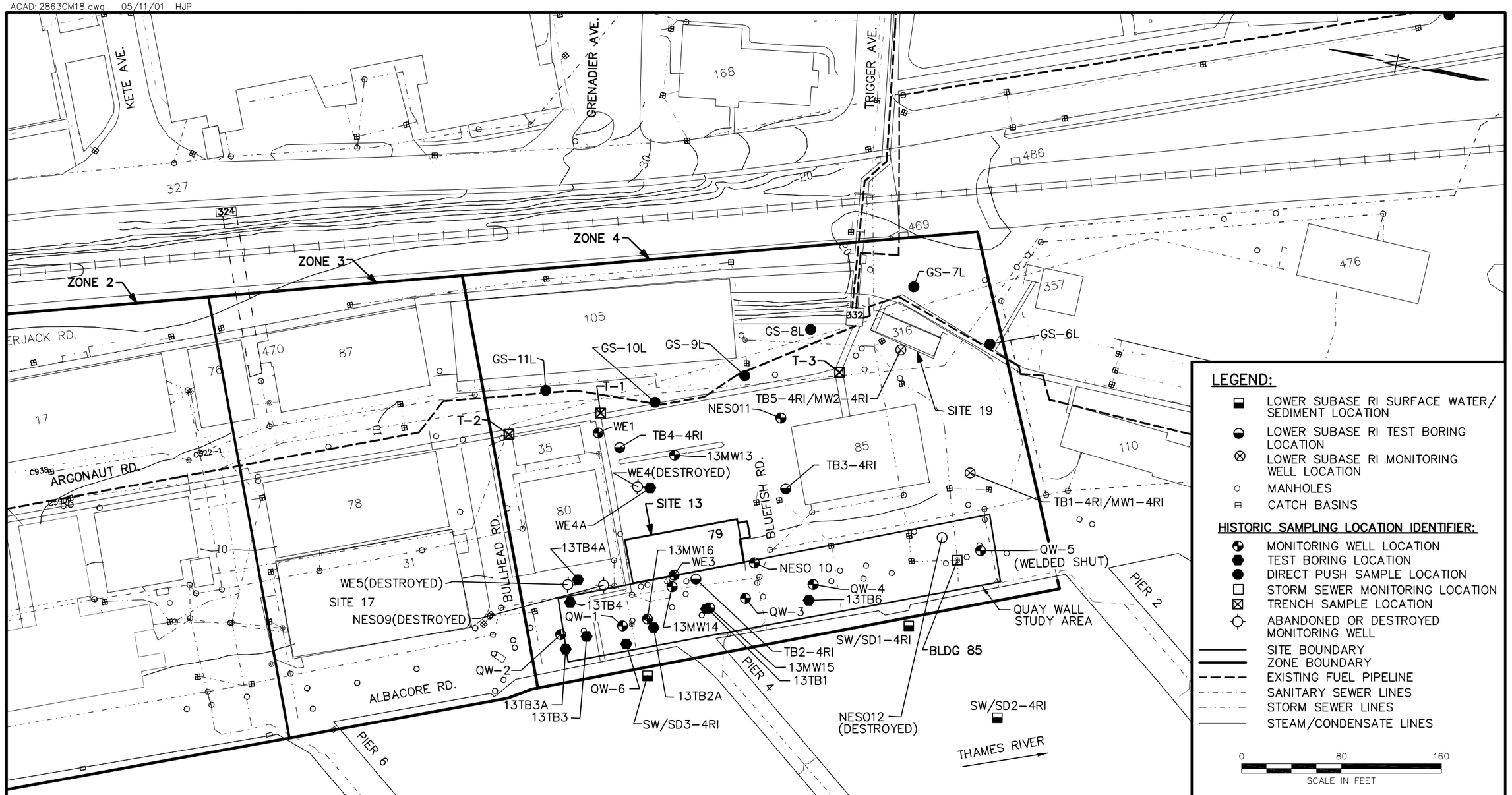

LEGEND:

- LOWER SUBASE RI SURFACE WATER/ SEDIMENT LOCATION
- LOWER SUBASE RI TEST BORING LOCATION
- LOWER SUBASE RI MONITORING WELL LOCATION
- MANHOLES
- CATCH BASINS

HISTORIC SAMPLING LOCATION IDENTIFIER:

- MONITORING WELL LOCATION
- TEST BORING LOCATION
- DIRECT PUSH SAMPLE LOCATION
- STORM SEWER MONITORING LOCATION
- TRENCH SAMPLE LOCATION
- ABANDONED OR DESTROYED MONITORING WELL
- SITE BOUNDARY
- ZONE BOUNDARY
- EXISTING FUEL PIPELINE
- SANITARY SEWER LINES
- STORM SEWER LINES
- STEAM/CONDENSATE LINES

0 80 160
SCALE IN FEET

NO.	DATE	REVISIONS	BY	CHKD	APPD	REFERENCES

DRAWN BY HJP DATE 5/10/01
CHECKED BY DATE
COST/SCHED-AREA
SCALE AS NOTED

Tetra Tech NUS, Inc.

SITE MAP
SITE 13 – BUILDING 79 WASTE OIL PIT
NSB-NLON
GROTON, CONNECTICUT

CONTRACT NO. 2863 | OWNER NO. 0816
APPROVED BY DATE
APPROVED BY DATE
DRAWING NO. FIGURE 12-1 | REV. 0

FORM CADD NO. T+NUS_BH.DGN - REV 0 - 1/20/98

13.0 SITE 14 – OVERBANK DISPOSAL AREA NORTHEAST (OBDANE)

This five-year review is being conducted for Site 14 as a matter of policy since an Action Memorandum has been completed and a NTCRA for soil and waste has been completed. The removal action resulted in no hazardous substances remaining in soil at the site that would limit use or restrict exposure. However, the groundwater OU for this site is still being investigated under CERCLA. Appropriate remedial actions for the groundwater OU will be determined in the future.

13.1 HISTORY AND SITE CHRONOLOGY

A list of important Site 14 historical events and relevant dates in the site chronology is shown below. The identified events are illustrative, not comprehensive.

Event	Date
Miscellaneous wastes dumped over the bedrock edge.	Prior to 1972
Final Initial Assessment Study completed.	1983
Phase I RI completed.	1992
Phase II RI completed.	1997
Overbank Disposal Area Northeast Action Memorandum completed.	1999
NTCRA completed.	May 2001
Draft Final Basewide Groundwater OU RI completed.	August 2001
Draft Removal Action Report for Over Bank Disposal Area Northeast	August 2001

13.2 BACKGROUND

The OBDANE site is located in a heavily wooded area on the edge of a ravine north of Stream 3 of the Area A Downstream, west of the Area A Weapons Center, and south of the Torpedo Shops. At one time, miscellaneous wastes were apparently dumped over the bedrock edge. The site is circular and approximately 80 feet in diameter. A dirt road provides limited access to the wooded site. Figure 13-1 shows the general site arrangement. The location of Site 14 in relation to the other IR sites is shown on Figure 1-2. A nearly vertical 20-foot-high bedrock face is located at the eastern edge of the site. The rest of the site slopes to the southwest.

The IAS Report (Envirodyne, 1983) stated that the vegetation at the site indicated that no dumping had occurred within 10 years prior to the 1982 investigation. The IAS report documented the presence of several empty fiber drums. Atlantic personnel inspected the site on September 30, 1988, and verified that the drums were still present. No visual staining or stressed vegetation was observed at this time. No development of this area was planned.

During the Phase I RI, surface soil samples were collected from within the limits of the identified disposal area. Based on the sample results, the RI concluded that there was negligible risk associated with Site 14 and recommended that a supplemental Step I Investigation be performed. During the Phase II RI investigation, a single shallow monitoring well was installed downgradient of the site and two rounds of groundwater samples were collected. Six additional soil samples were also collected within the limits of the disposal area and downgradient of the area. The Phase II RI concluded that all human health risks were found to be within or below USEPA's target range; however, arsenic was found in surface soil samples at concentrations slightly exceeding state standards, and lead contamination was found in surface soil samples approximately 80 feet south of the site. The RI Report recommended that further characterization of the surface soil with respect to arsenic and lead should be completed.

An Action Memorandum for a NTCRA was prepared for Site 14 by the Navy in 1999. A work plan for the removal action was prepared, and the removal action was completed in May 2001. A post-removal action report is currently being prepared by the Navy to document the actions taken during removal action.

The groundwater OU associated with this site is being further characterized as part of the Basewide Groundwater OU RI. A draft final Basewide Groundwater OU RI report was completed in August 2001 (TtNUS, 2001e). For the RI, the Area A Downstream Watercourses/OBDA (Site 3) and OBDANE (Site 14) were evaluated collectively. This approach was taken because the OBDANE falls within the general site boundary of Site 3 and any impacts from Site 14 would be detected in the groundwater beneath Site 3. The objective was to further characterize the nature and extent of groundwater contamination and quantify the risks to human receptors from the groundwater. Groundwater sampling results for Site 3 and 14 indicate that the water quality is generally good, with only sporadic, low-concentration detections of VOCs and metals in site monitoring wells. The major contaminant of concern in the soil and sediment, DDTR (i.e., DDT and its derivatives) was detected in only one groundwater sample and it is likely that the detection is associated with high levels of suspended solids in the groundwater sample versus dissolved pesticides. The groundwater data indicate that multiple minor sources of chlorinated solvents are leaching to groundwater, but the sources are not significant enough to create discernable contaminant plumes. A preliminary evaluation of natural attenuation data indicated that biodegradation and other natural attenuation processes are acting to reduce organic contaminants to relatively insignificant levels in the Area A Downstream and that it is likely that monitored natural attenuation would be viable for the source area impacting monitoring well 2DMW29S.

The HHRA determined that risks posed by exposure of construction workers to groundwater at Sites 3 and 14 are within USEPA and CTDEP acceptable levels, assuming that the workers are exposed to the maximum observed concentrations of site contaminants. The HHRA also determined that risks posed by exposure of hypothetical future residents to groundwater at Sites 3 and 14 are outside of USEPA and

CTDEP acceptable levels, assuming the residents are exposed to the maximum observed concentrations of site contaminants. Arsenic, benzo(a)pyrene, TCE, and vinyl chloride were the major contributors to the ICRs and thallium was the major contributor to the HIs. It should be noted that the groundwater is classified at OBDANE by CTDEP as GB groundwater (i.e., not suitable for direct human consumption without treatment) and it is not likely that it will be used for human consumption in the foreseeable future.

Even though contaminant concentrations were generally low and risks are acceptable under the current land use scenario, it is recommended that an FS evaluate the groundwater OU associated with Sites 3 and 14. The FS should evaluate, at a minimum, land use controls and monitoring for the sites. This recommendation is made for the following reasons:

- The source areas are not fully understood, but the current groundwater data (i.e., concentrations and extent) do not indicate that the sources are significant and further investigation is warranted to completely characterize them.

- A limited groundwater monitoring program would verify the trend in groundwater contaminant concentrations and determine the impact of any changes in site/source area conditions in the future.

- A change in land use would potentially result in the site groundwater causing unacceptable risks. However, a change in land use is unlikely since the OBDANE is within the exclusion zone of the Torpedo shop.

13.3 REMEDIAL ACTIONS

13.3.1 Remedy Selection

Removal and off site disposal of soil and debris from Site 14 was the recommended alternative in the Action Memorandum. The alternative provides excellent protection to human health and the environment by removing the sources of contamination that pose a potential risk to receptors. After the removal action is completed a decision document will need to be prepared for the soil OU at Site 14. It is likely that the document will be a NFA decision document because the removal action should address risks associated with the soil OU.

The CTDEP pollutant mobility criteria for soil, the CTDEP Direct Exposure Criteria (DEC) for soil, and the Federal, Food, Drug, and Cosmetics (FFDC) action tolerance level were selected as soil remedial goals for soils at this site. The target remedial level for total DDTR is risk based. Disposal of debris and contents will be in accordance with RCRA requirements.

An FS should be conducted for the groundwater at Site 14 and Site 3 to determine the appropriate remedial alternatives for contamination detected during the Basewide Groundwater OU RI. A ROD will need to be completed when the remedy is selected for the groundwater OU for Site 14. The FS is currently anticipated for completion in March 2002 and the ROD in December 2002.

13.3.2 Remedy Implementation

A NTCRA was completed at the site in May 2001. The cost of the NTCRA was estimated at $200,000. Actual remedial costs were not available at the time of preparation of this report. Soil and debris were removed and disposed off-site during the NTCRA. A post-removal action report is currently being prepared by the Navy. The details of the removal action will be provided in the Second Five-Year Review Report.

13.4 FIVE-YEAR REVIEW FINDINGS

13.4.1 Site Inspection

The site inspection conducted at Site 14 on April 11, 2001 included visual observations of the site and surrounding areas. The inspection was completed prior to the NTCRA. Conditions during the inspection were favorable, with mild temperatures and no precipitation. Representatives from the Navy, USEPA, CTDEP, and TtNUS participated in the inspection. No evidence of leaking tanks, drums, or other containers was evident during the inspection or was reported during previous investigations.

The site is located in a secure area surrounded by a chain-link fence and is not accessible to the general public. There is no short-term or long-term plan to convert this area to any other use. Similar to the Area Downstream site, Site 14 is located within the ESQD arcs of the Area A Weapons Center; therefore, further development is not planned for this area. Appendix A contains photographs that were taken of the site during the inspection and during a subsequent site visit in August 2001. The NTCRA was completed prior to the August 2001 site visit.

13.4.2 Document and Analytical Data Review

The Action Memorandum and draft final Basewide Groundwater OU RI were reviewed for this five-year review. The post-removal action report for the NTCRA was not available for review at the time of preparation of this report. A summary of the documents that were reviewed is presented below.

A review of the Action Memorandum provided the decision process for selecting a NTCRA for Site 14. The only significant contamination of surface soil and sediment at OBDANE is associated with arsenic and lead. Debris such as fiber drums and other containers are laying on or are embedded in the surface

soil and sediment. The benefit of the NTCRA was that it would eliminate any potential adverse impacts to human and ecological receptors from potential leakage and migration of contaminants from containers and other materials at the site.

A review of the draft final Basewide Groundwater OU RI Report indicated an FS is necessary for groundwater at Sites 3 and 14 since sporadic contamination was detected and the source areas are not fully understood. It was recommended that the FS evaluate, at a minimum, an alternative with a limited groundwater monitoring program to verify the trend in groundwater contamination concentrations and determine the impact of any changes in site/source area conditions in the future.

13.4.3 ARAR and Site-Specific Action Level Changes

No changes have occurred in the remedial goals defined in Section 13.3.1 since the Action Memorandum was signed and the NTCRA was completed. The NTCRA was recently conducted at the site and the final post-removal action report is not yet available. In addition, a final decision document has not been signed for Site 14.

13.5 ASSESSMENT

A NTCRA was recently conducted at the site and the final post-removal action report was not yet available at the time of preparation of this report. A final decision document will be prepared for the soil OU in the future. The groundwater OU for the site is still under investigation. Conclusions regarding the determination that the remedy at Site 14 is protective of human health and the environment will be made after the post removal action report and soil and groundwater OUs decision documents are available.

The Navy has an IR Site Use Restriction instruction in place as of October 2000 at NSB-NLON [SOPA (ADMIN) NLONINST 5090.18]. The policy restricts ground surface disturbance of soils or any subsurface disturbance of soils and/or groundwater at IR sites.

13.6 DEFICIENCIES

A final remedy has not been implemented at Site 14, therefore deficiencies cannot be determined at this time.

13.7 RECOMMENDATIONS AND REQUIRED ACTIONS

The post-removal action report should be completed to document the NTCRA. The results of the confirmatory sampling and post-removable action risk analysis should be documented in the report to show that the action was protective of human and ecological receptors in regard to arsenic and lead. A

NFA decision document should then be prepared for the soil OU. The FS for the groundwater OU at the site should be completed to determine the appropriate remedial alternatives for groundwater. In addition, it is recommended that there be enforcement of the IR Site Use Restriction instruction.

13.8 PROTECTIVENESS STATEMENT

A protectiveness determination of the remedy at Site 14 cannot be made at this time. It is expected that the NTCRA conducted at Site 14 eliminated the source of contamination and should have eliminated any direct exposure and contaminant migration concerns to human and ecological receptors. However, the results of the NTCRA are not yet available. The site is located within a secure area and is not accessible to the general public, preventing exposure in the short term. An FS is recommended to address groundwater contamination beneath Sites 3 and 14.

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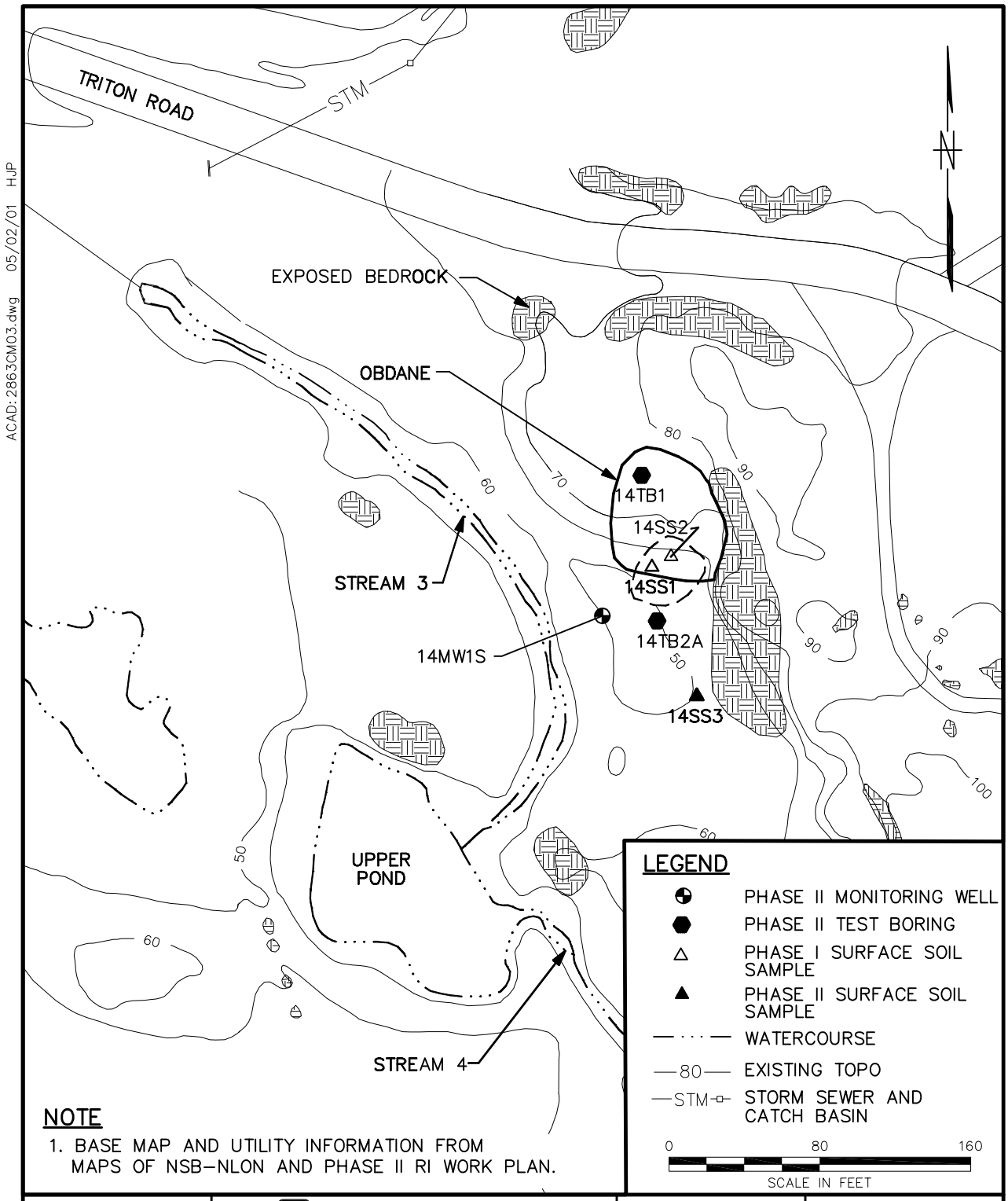

DRAWN BY HJP DATE 5/2/01	Tetra Tech NUS, Inc.	CONTRACT NO. 2863	OWNER NO. 0816
CHECKED BY DATE	SITE MAP SITE 14 – OBDANE NSB-NLON GROTON, CONNECTICUT	APPROVED BY DATE	
COST/SCHED-AREA		APPROVED BY DATE	
SCALE AS NOTED		DRAWING NO. FIGURE 13-1	REV. 0

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